

EXAMPLE OF ROTOR FLUX VECTOR DIRECTION CALCULATION

CASE: AC POWER  $Q_2$  60  
 RESULT:  $60 - 150 = -90$   
 ROTOR ANGLE 150

ROTOR FLUX VECTOR MUST POINT AT -90 DEGREES TO REMAIN IN PHASE-LOCK

ALL NUMBERS IN DEGREES

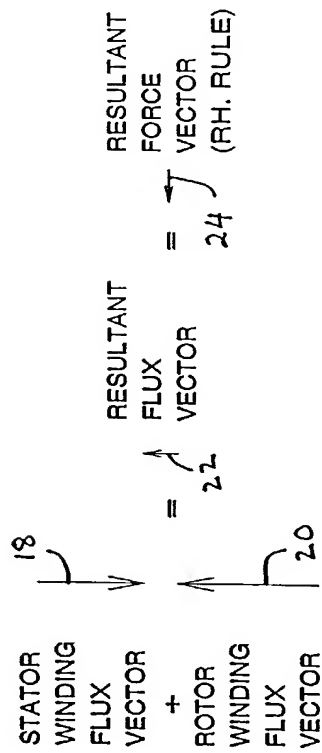
Fig. 1

# EXAMPLE OF ROTOR FLUX VECTOR MAGNITUDE CALCULATION

CASE:

STATOR WINDING FLUX VECTOR MAGNITUDE 3 UNITS

ROTOR WINDING FLUX VECTOR MAGNITUDE 4 UNITS



ROTOR WILL ACCELERATE COUNTERCLOCKWISE

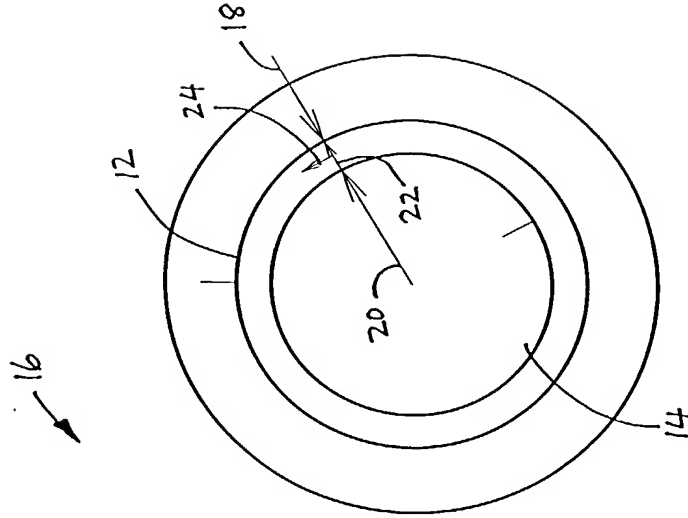
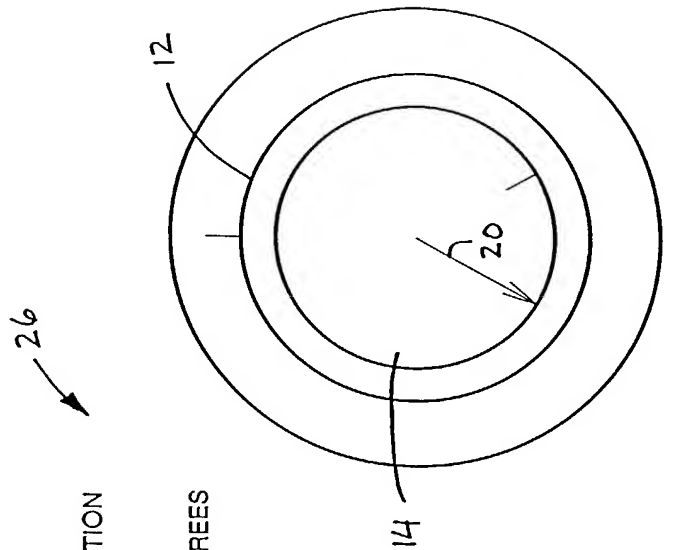
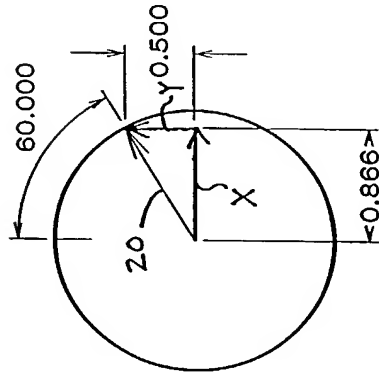


FIG. 2



EXAMPLE OF ROTOR FLUX VECTOR COMPONENT SEPARATION

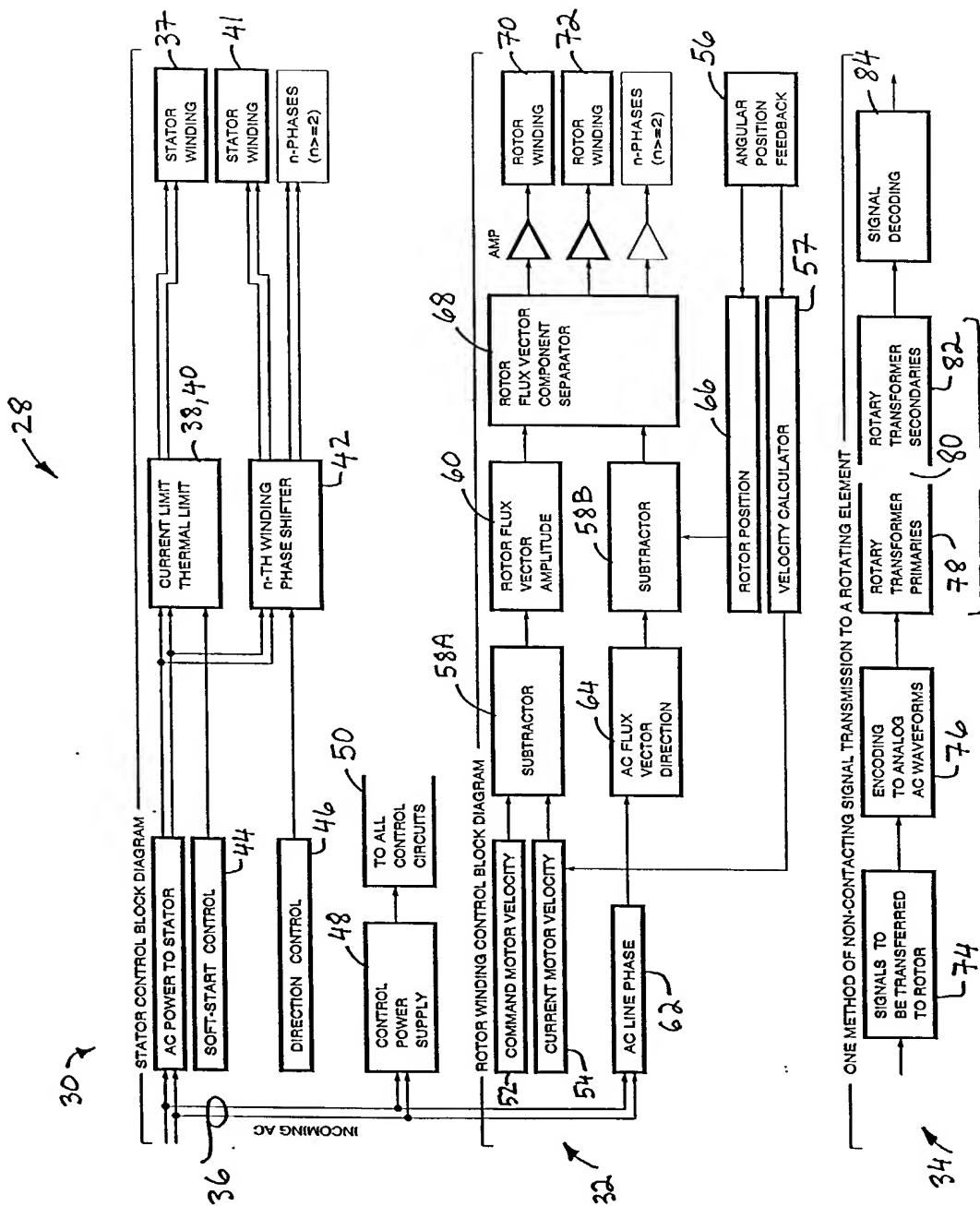
CASE:  
 ROTOR WINDING FLUX VECTOR DIRECTION 60 DEGREES  
 2-PHASE ROTOR WINDING

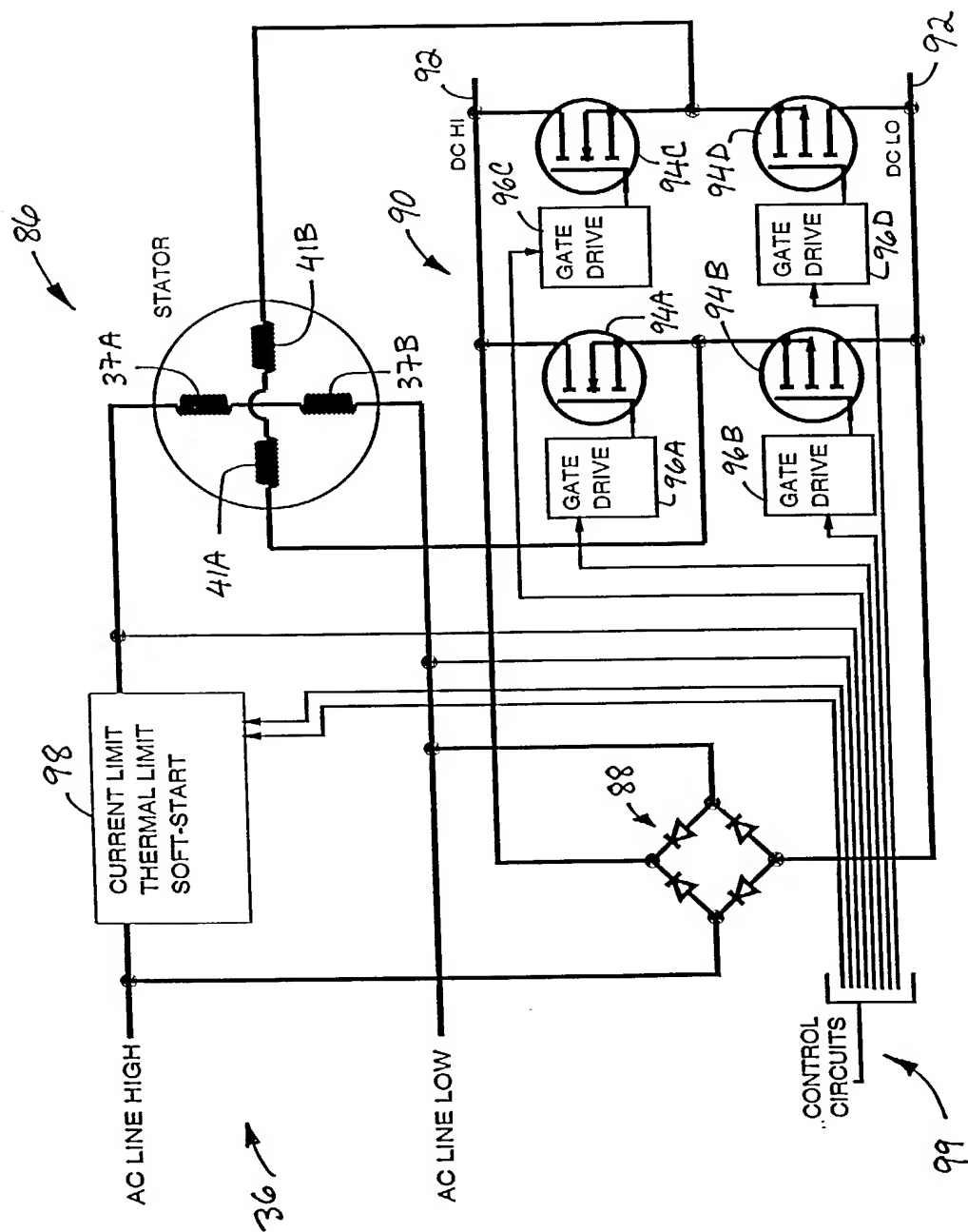


COMPONENT X DRIVE CURRENT SCALING FACTOR 0.866  
 COMPONENT Y DRIVE CURRENT SCALING FACTOR 0.500

Fig. 3

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$$\frac{1}{\sqrt{2}} \begin{pmatrix} 1 & i \\ 0 & 1 \end{pmatrix}^{-1} = \frac{1}{\sqrt{2}} \begin{pmatrix} 1 & -i \\ 0 & 1 \end{pmatrix} = \frac{1}{\sqrt{2}} \begin{pmatrix} 1 & -i \\ 0 & 1 \end{pmatrix}$$

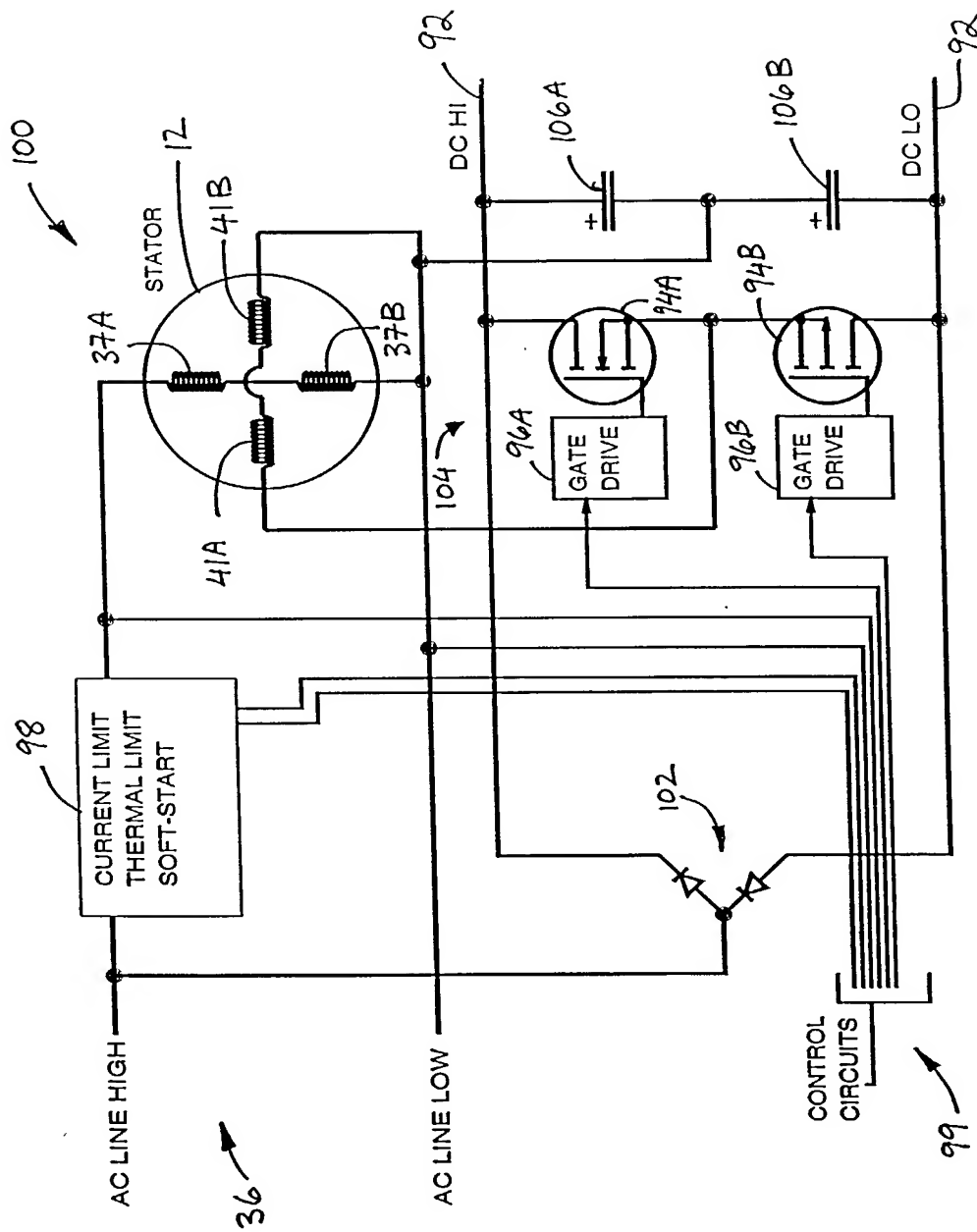


FIG. 6

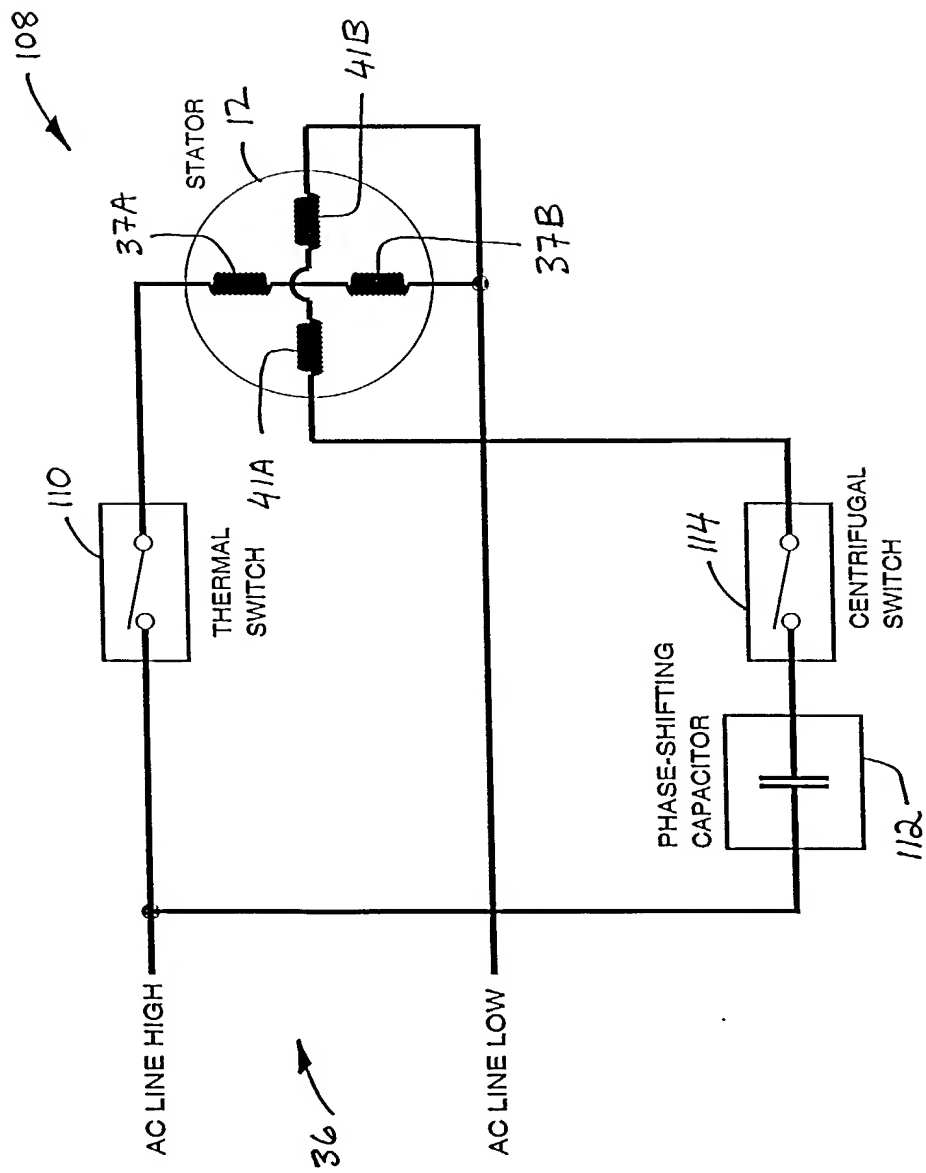


Fig. 7

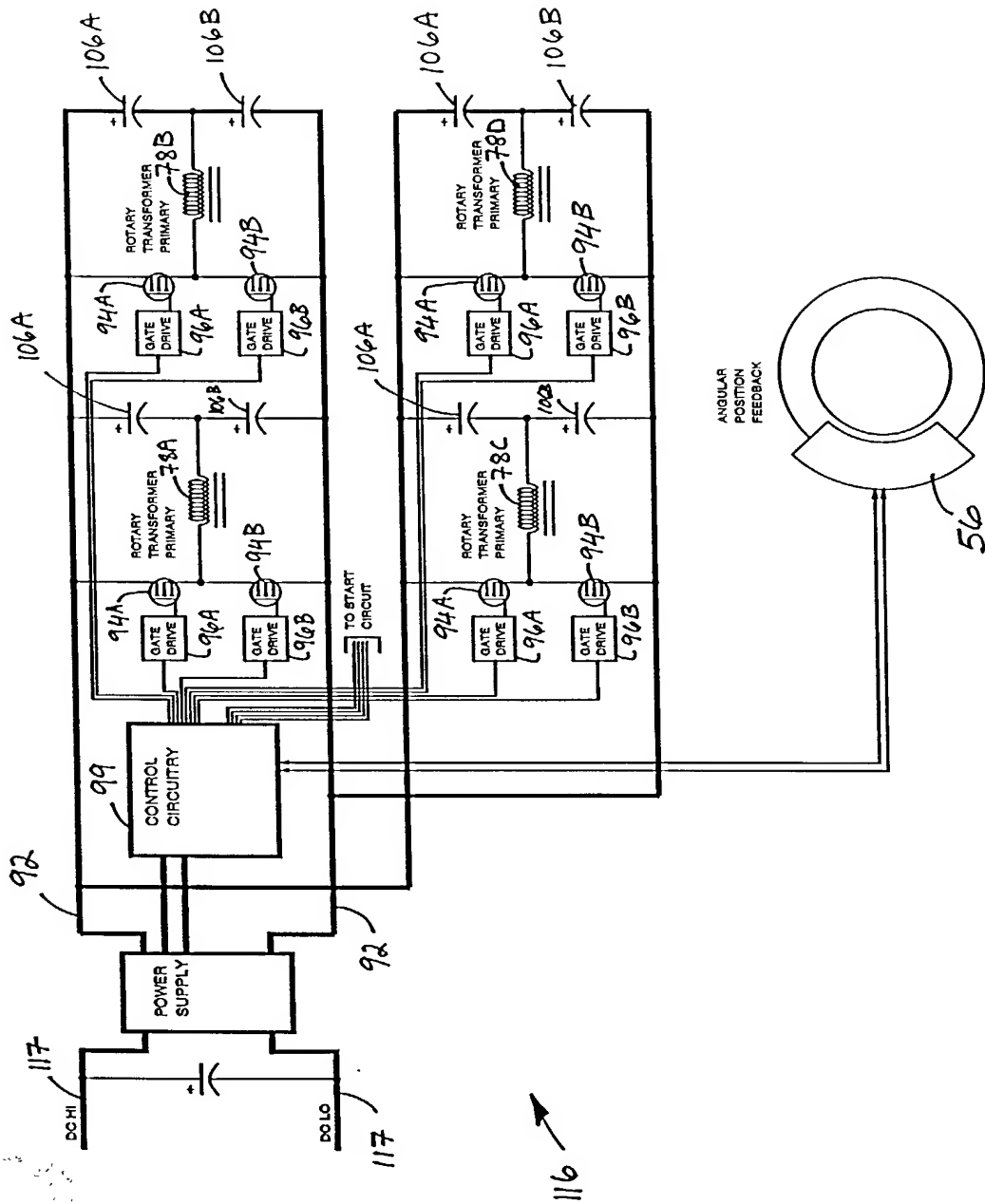


FIG. 8

FIG. 8



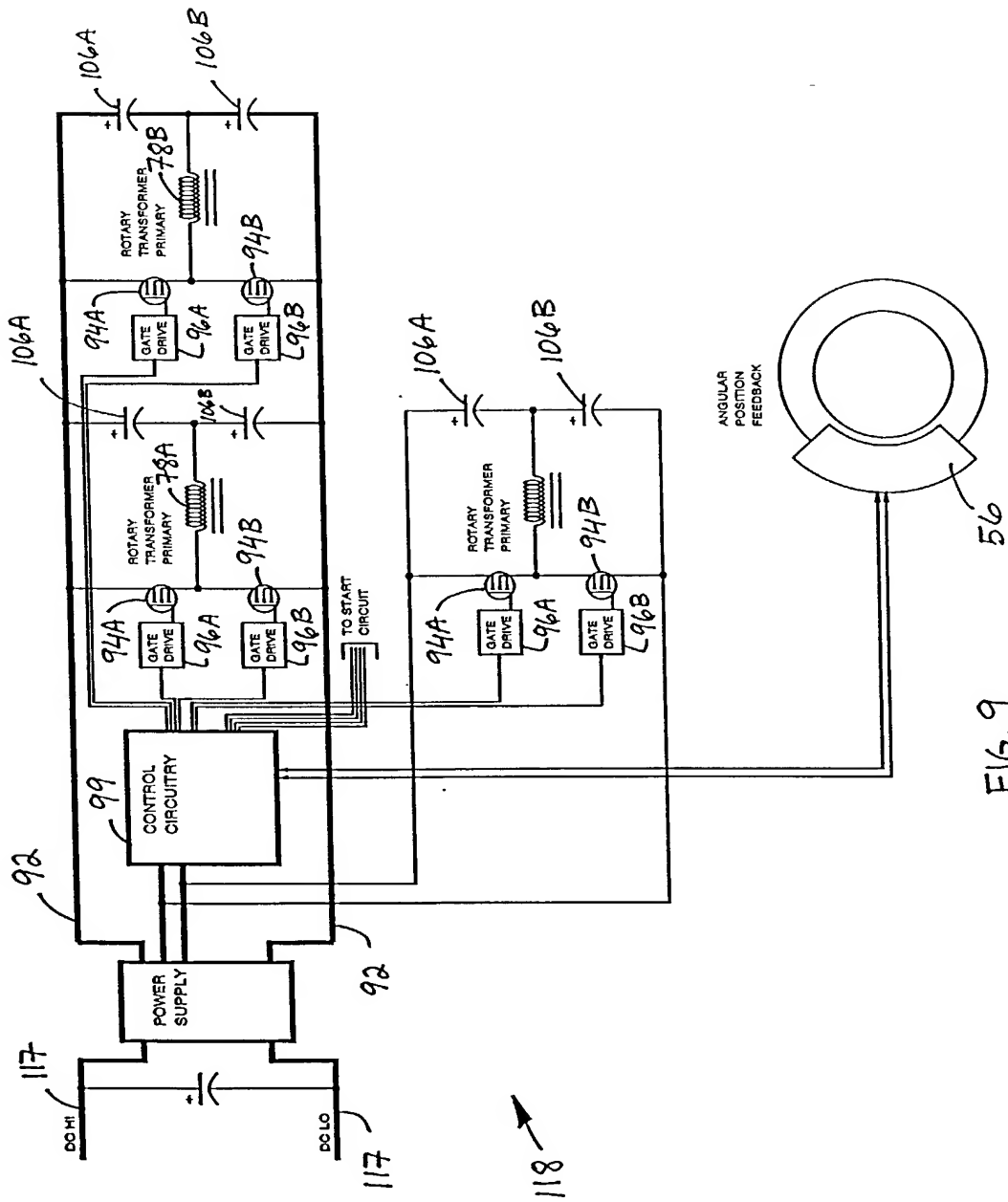


FIG. 9

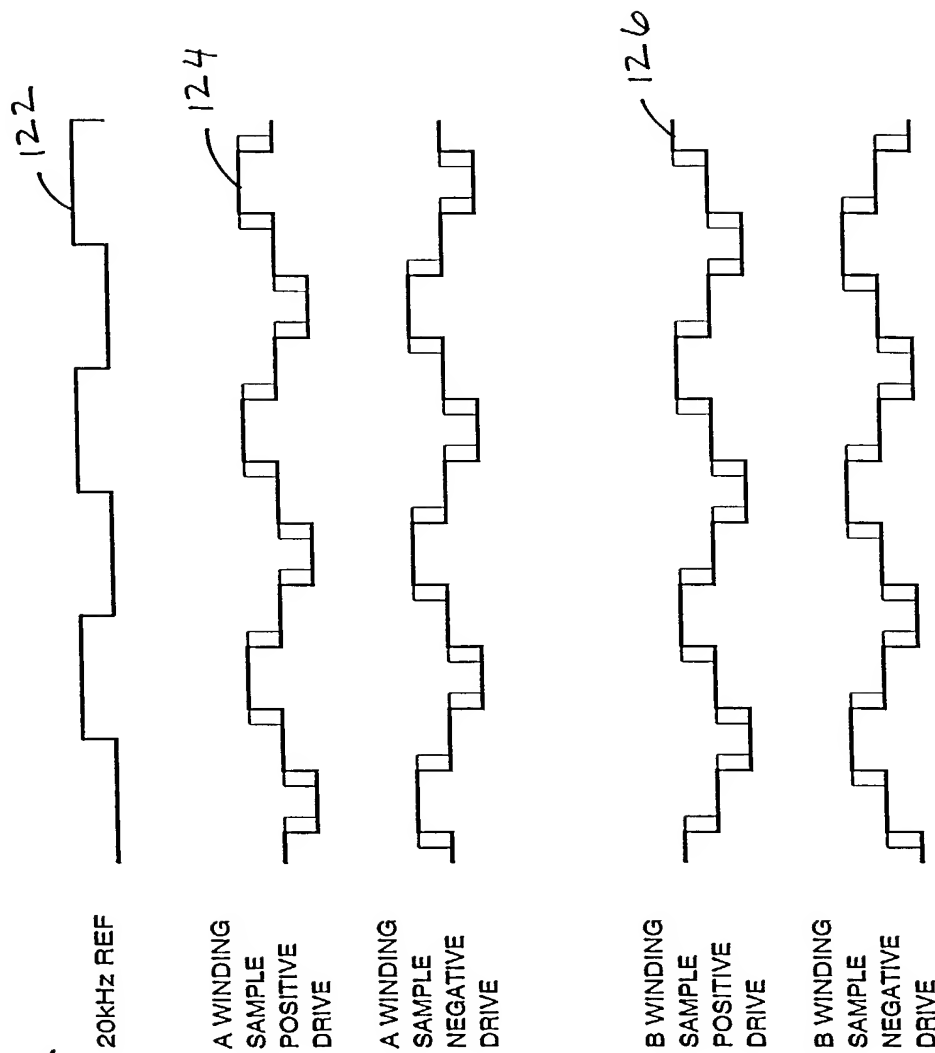


Fig. 10

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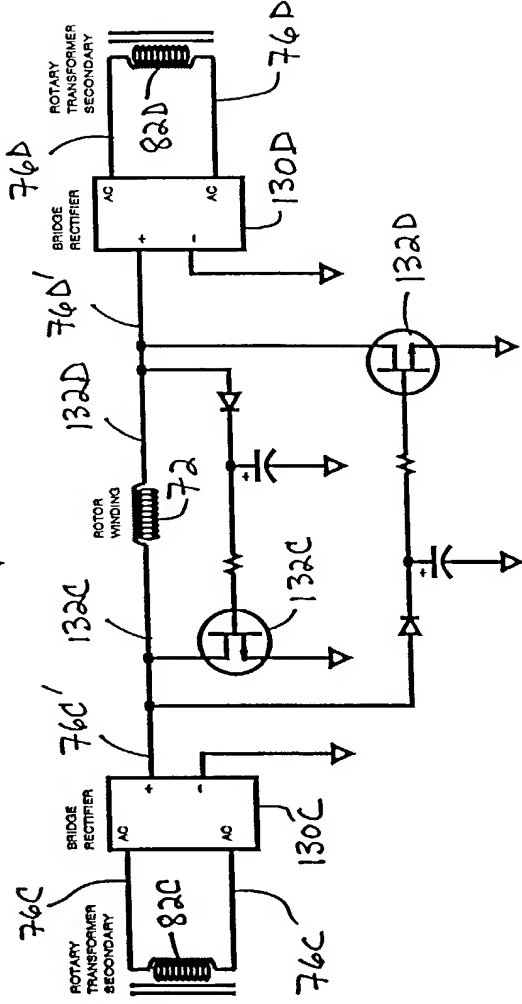
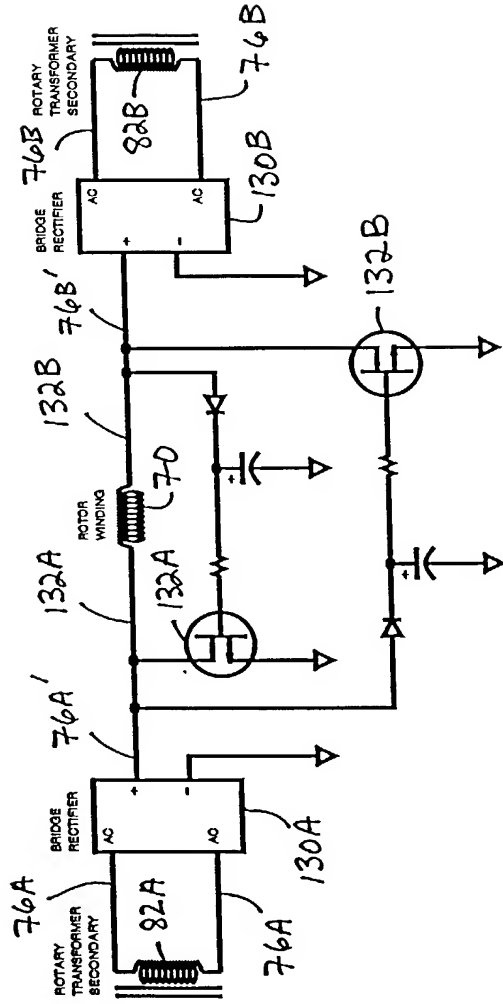


FIG. 11

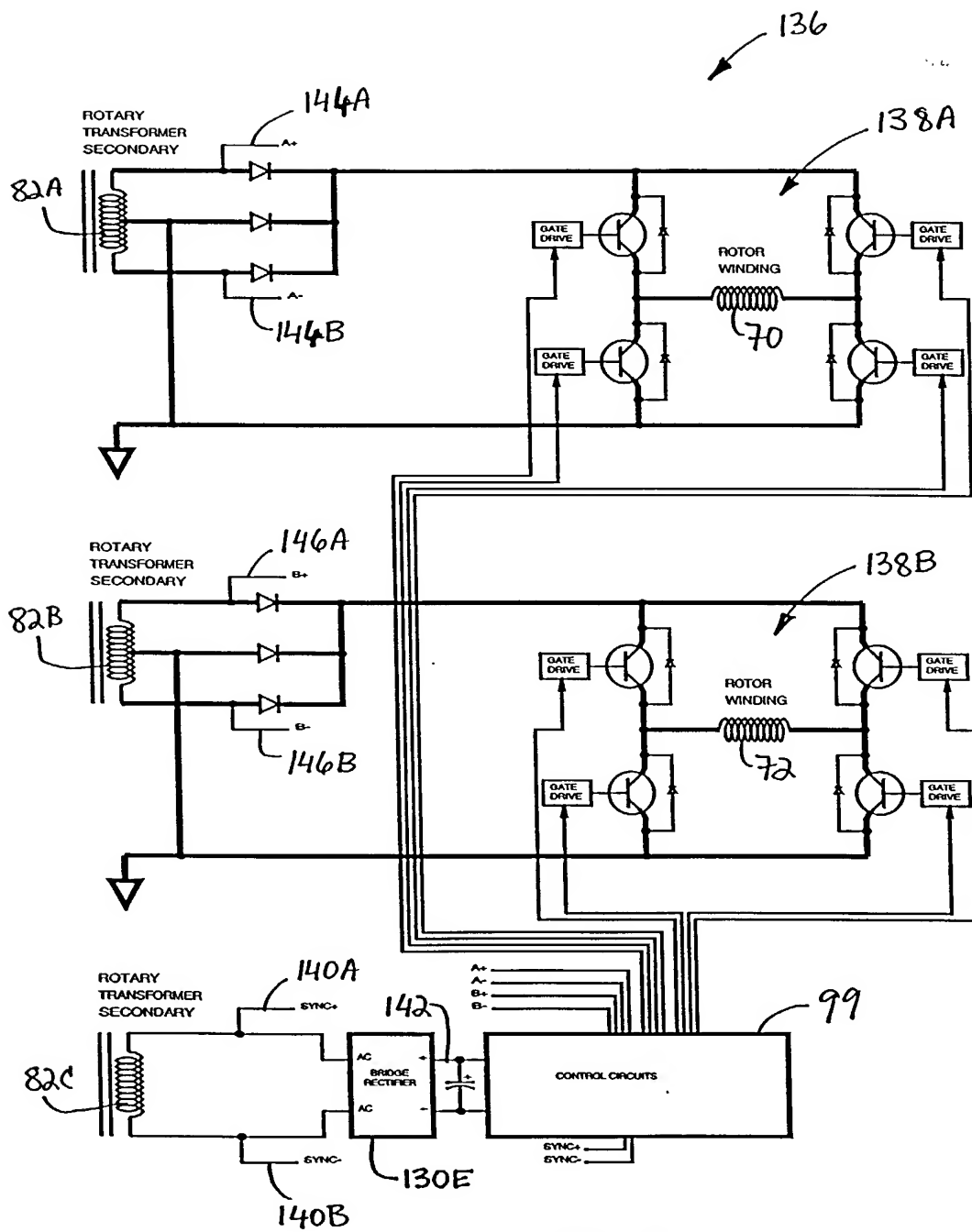


FIG. 12

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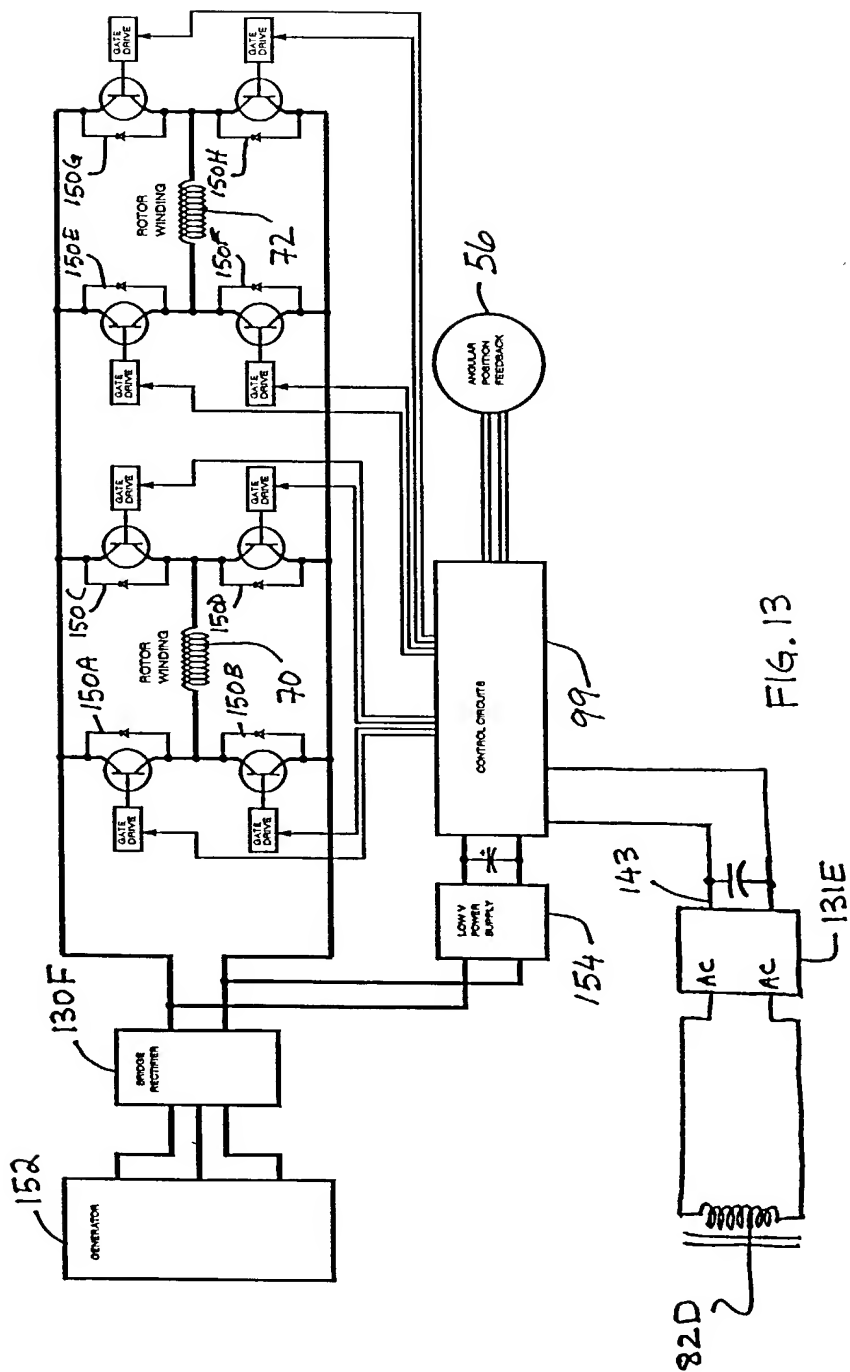
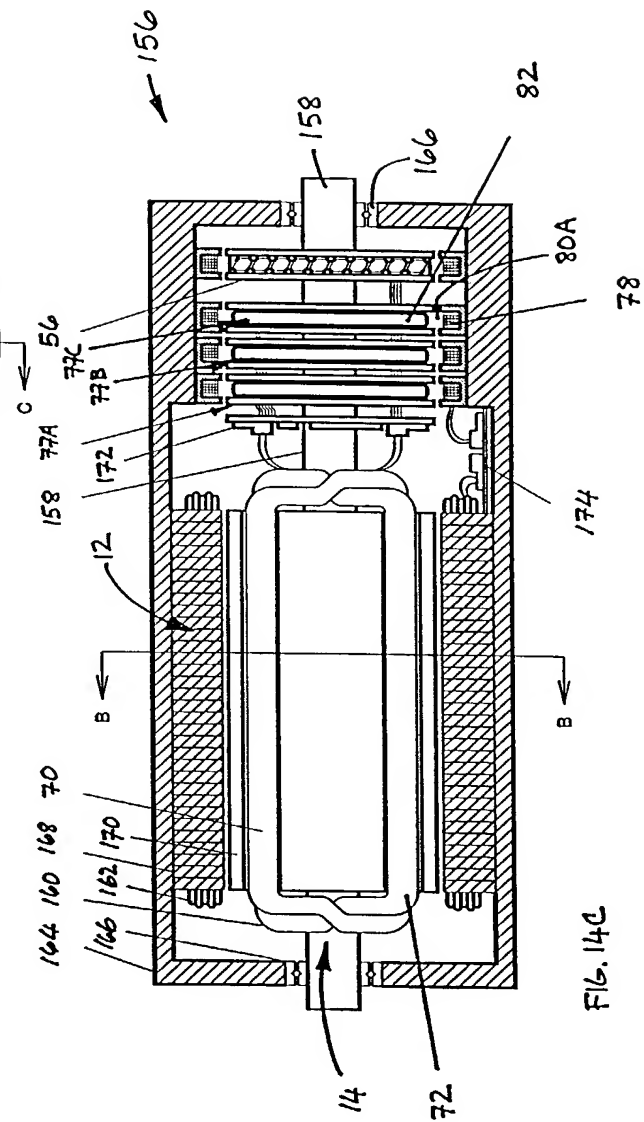
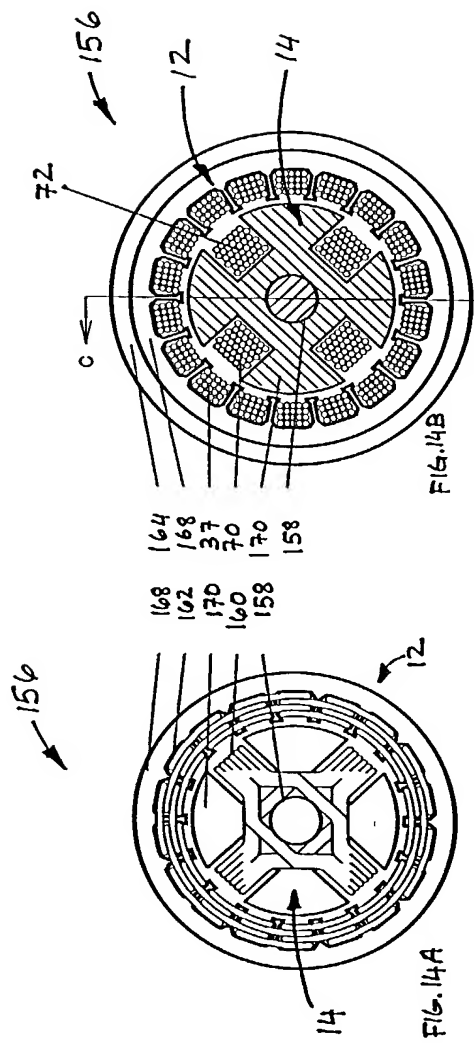
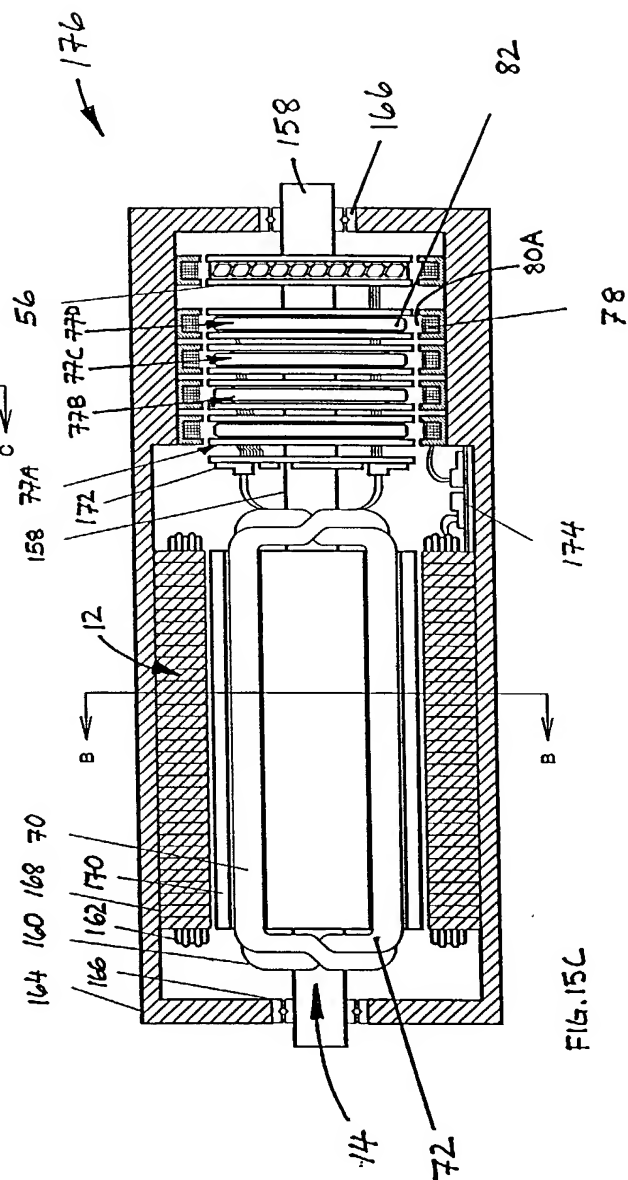
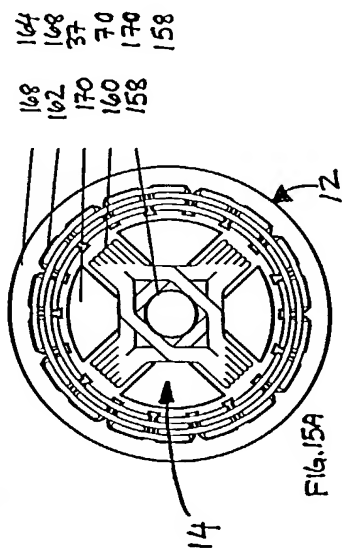
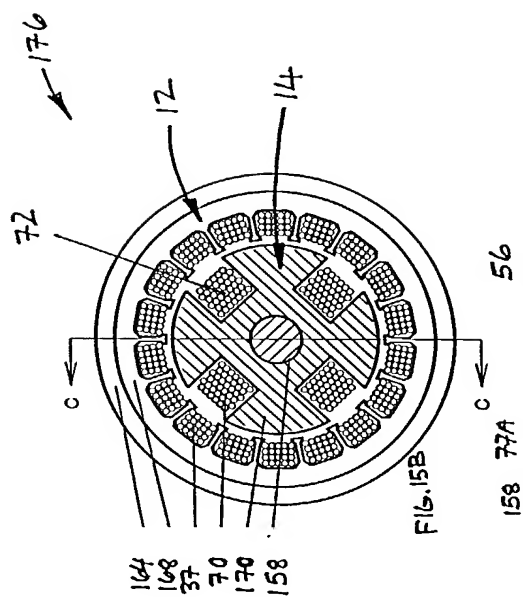
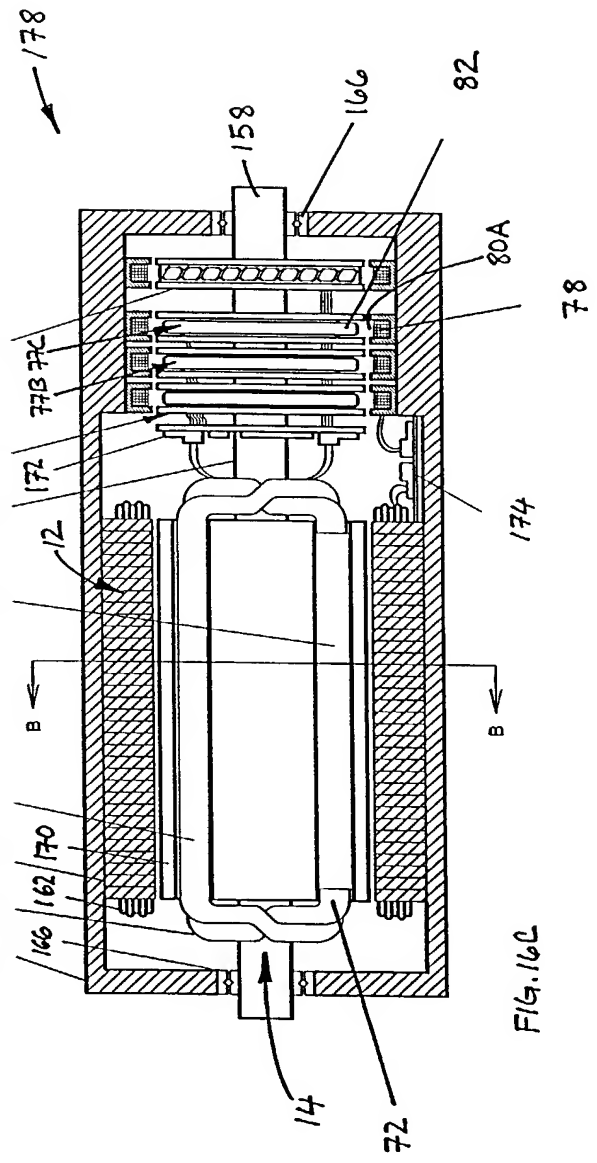
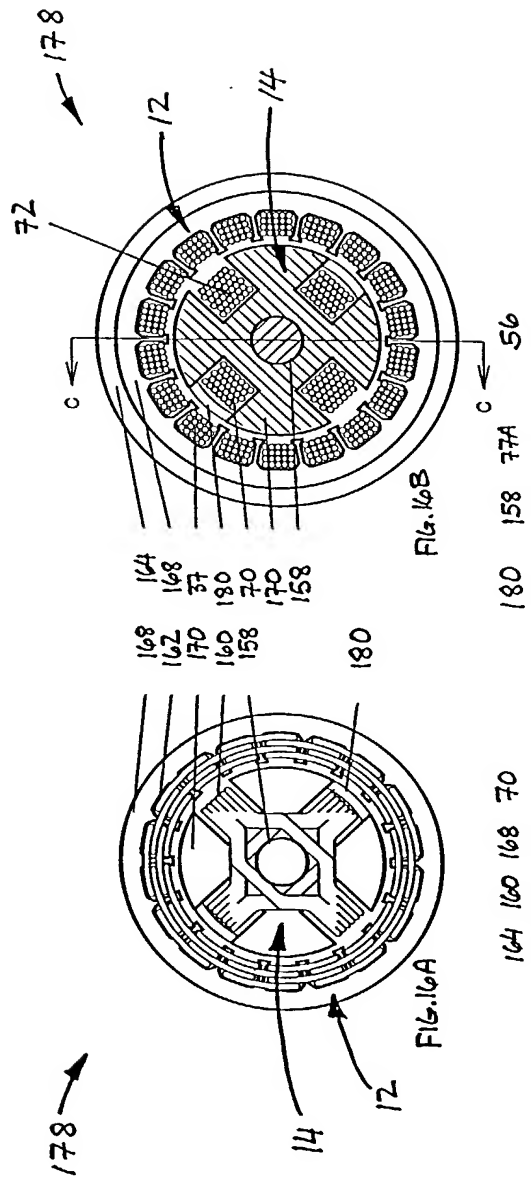


FIG. 13

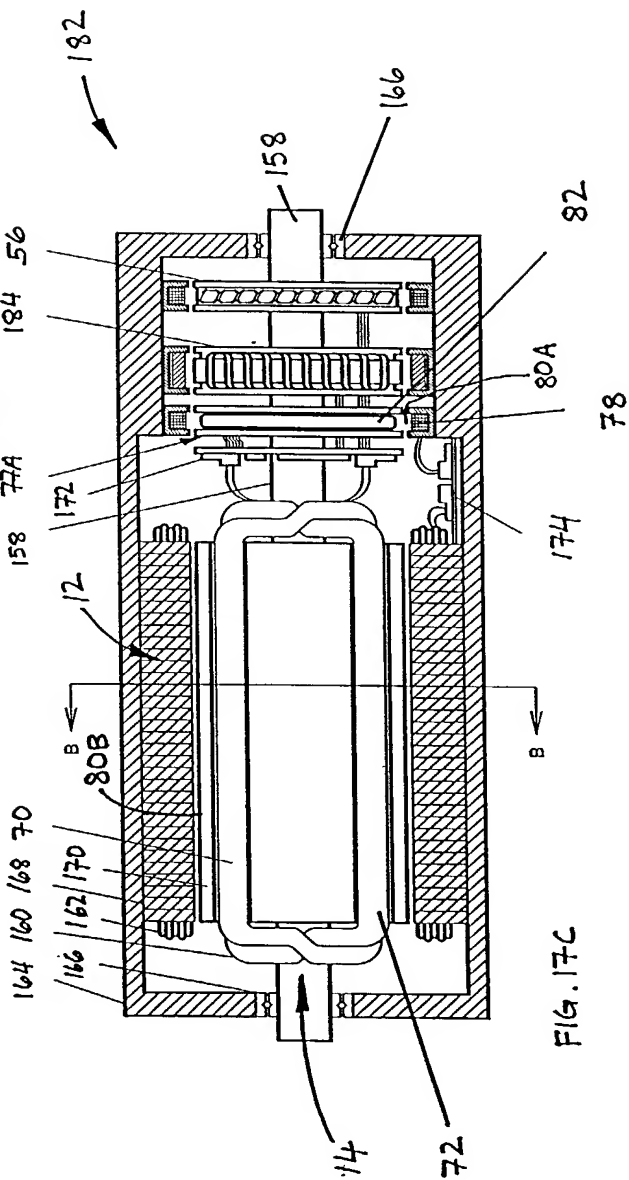
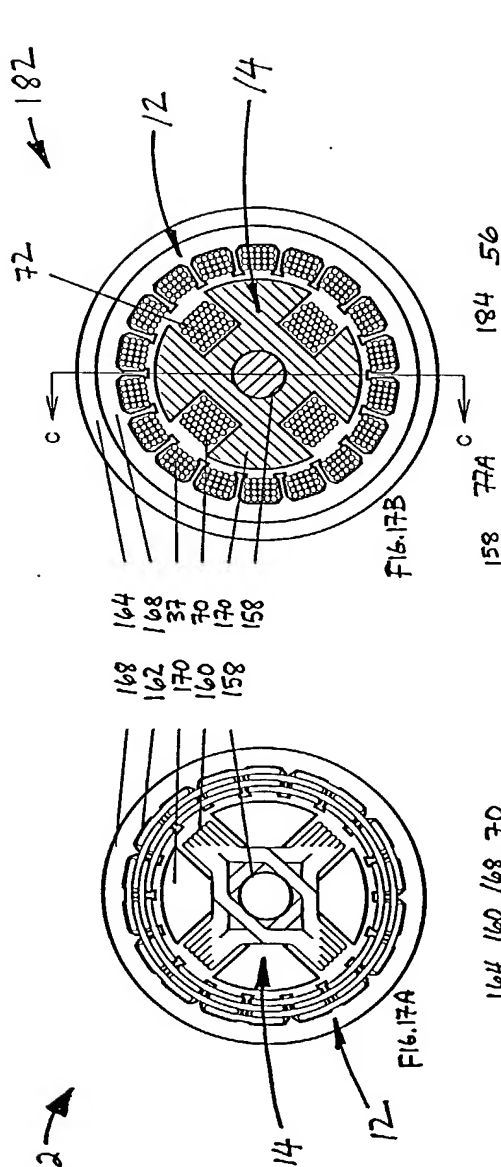
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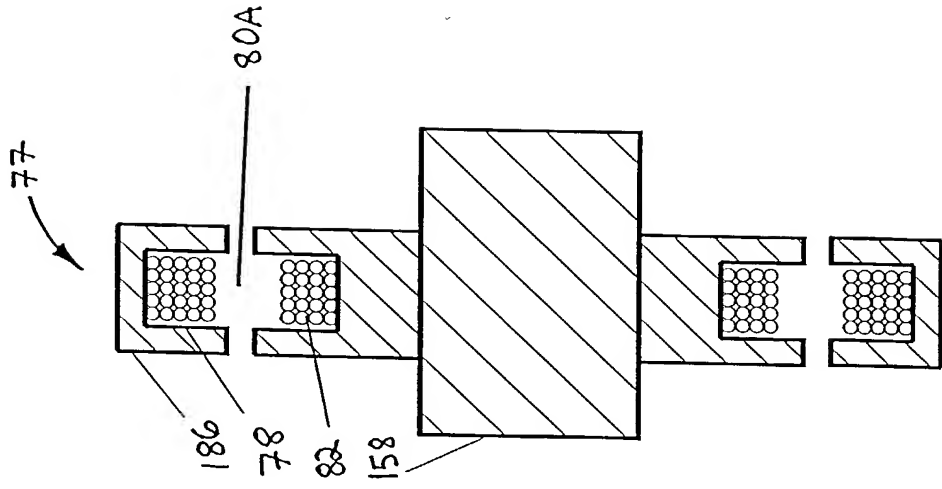


FIG. 18A

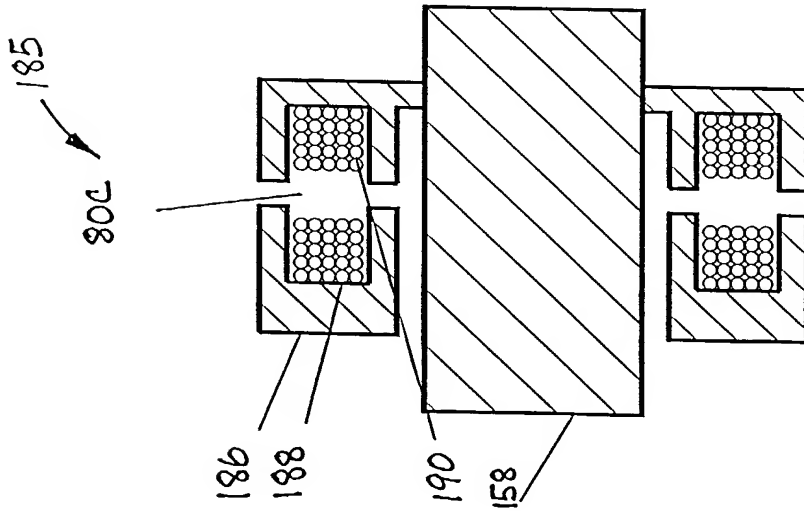


FIG. 18B